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# Quantitative Investigations on Bird Communities in Different Habitats in the Orkhon-Selenge-Valley in Northern Mongolia

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# Quantitative investigations on bird communities in different habitats in the Orkhon-Selenge-Valley in northern Mongolia[1]

T. Stenzel, M. Stubbe, R. Samjaa & S. Gombobaatar

## Abstract

In the breeding seasons 2001 to 2003, the Avifauna of a study area of about 80 km$^2$ in the Selenge Aymag was studied.

The area is characterized by loose groves of elms (*Ulmus pumila*) and pine trees (*Pinus sylvestris*), and a chain of barchan dunes which separate the Orkhon valley from the up to 70 m higher situated forest steppe. Steppe species (*Stipa* spp.) dominate in the south; the northern steppe part is characterized by *Caragana* bushes (*Caragana microphylla*, locally *C. stenophylla*). Between Orkhon Gol and the eastern dunes, dry steppe areas alternate with moist places along former river courses and riverine plains. Pine woods and burnt areas form the southern edge of the study area.

Breeding birds were primarily identified during territory mapping. For several species all nests in the area were registered, e.g. for raptors, crows, Common Hoopoe (*Upupa epops*) and other troglodytes. Data was complemented by captures with standardized net catches in the *Salix*-stands in 2002–2003.

In the period 2000–2003, 250 bird species were recorded in the study area and its surroundings. Of these, 145 species probably hatch there. Detailed information on distribution, abundance, and breeding ecology is available for 111 breeding species. Altogether, about 70,000 individual position records were taken during three years of fieldwork.

**Keywords** territory mapping, breeding bird communities, quantitative bird inventories, Selenge Aymag, Mongolia

## Introduction

Over a 100 years of ornithological research in Mongolia have yielded for good general information on the occurring species and their distribution, but special knowledge about the frequency of birds in different habitats and the quantitative composition of bird communities in defined areas of the countryside is rare (Bold, 1984; Mauersberger, 1979, 1980, 1989; Kleinstäuber & Suckow, 1978; Piechocki, 1983; Wichmann, 2001). In the breeding seasons 2001 to 2003 the avifauna of a study area of about 80 km$^2$ in the Selenge Aymag was studied quantitatively by a German-Mongolian project jointly led by the universities Ulaanbaatar and Halle, which aimed at collecting data on communities of breeding birds in an anthropogenically influenced landscape within the forest-steppe zone.

## Study area

The study area (figure 1) is about 80 km$^2$ in size. It is situated in the northern Selenge Aymag between 50° 05' to 50° 11' N and 106° 08' to 106° 17' E in the eastern part of the valley of the Orkhon Gol between the Aymag-Center Sukhbaatar Khot and Šaamar Sum. It stretches for some 11 km in N–S direction and extends up to 11 km from the river Orkhon eastwards into the steppe. It lies between 600 m (river plains) to 680 m (forest steppe) above sea level. Climatic

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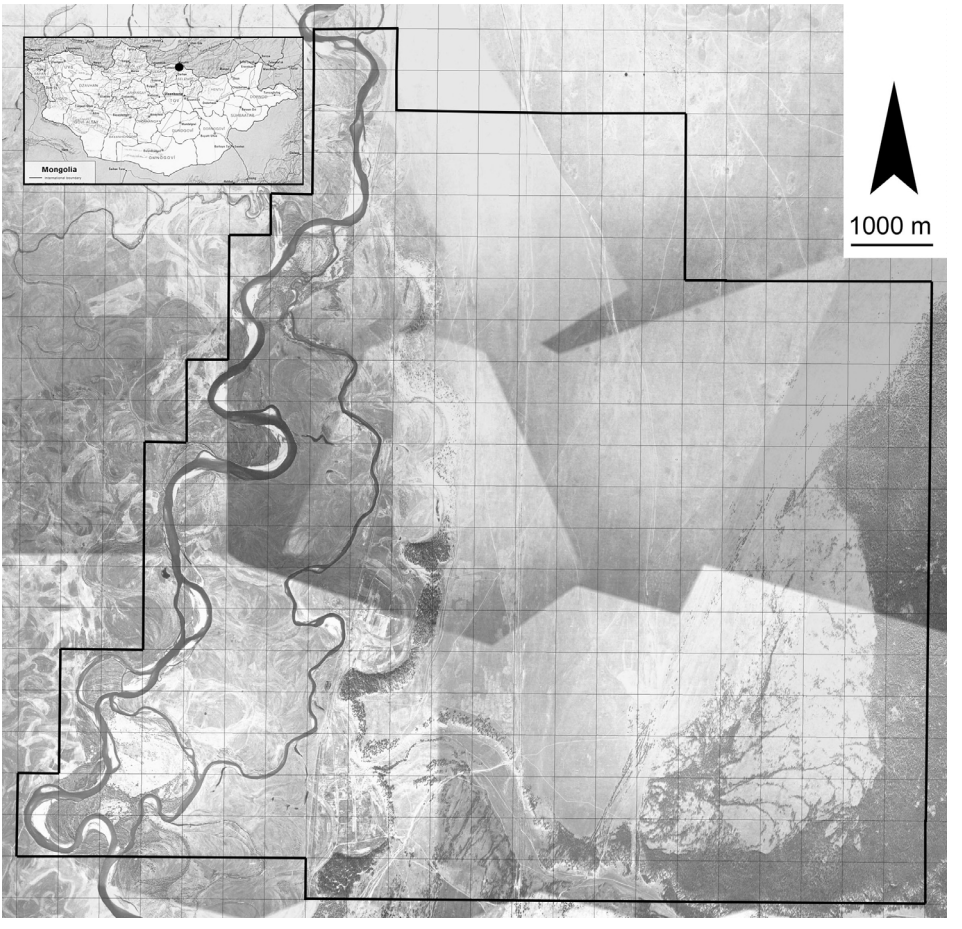


**Figure 1:** Map of the study area created from air pictures from 1978; the small inset shows the location of the study site in Mongolia.

conditions are highly continental and arid with an average annual precipitation of 304 mm, most of the precipitation falls from June to July. Day-time temperatures in July average 19.1 °C, in January -20.3 °C (Forkert & Stelling, 2001). The growing season starts in May and ends in August. The Orkhon valley contains partly permafrost soils, which are easily visible along former river beds.

Characteristically for the study area are loose groves of elms (*Ulmus pumila*) and pine trees (*Pinus sylvestris*), and a chain of barchan dunes which separates the Orkhon valley from the up to 70 m higher situated forest steppe.

Steppe species (*Stipa* spp.) dominate in the southern part, while the northern steppe part is characterized by *Caragana* bushes (*C. microphylla*, locally *C. stenophylla*). Between Orkhon Gol and the eastern dunes, dry steppe areas alternate with relatively moist former river courses and riverside lowlands. Pine woods and burnt areas form the southern edge of the area (northern border of the Tujin-Nars-Nature-Conservation-Park).

The edges of the river valley are densely settled (short distance to the Aymag-Center Sukhbaatar Khot, and Sum-Center Šaamar). Beside important stockbreeding activities (cattle, horses,

sheep, goats) the cultivation of potatoes and vegetables prevails. Agriculture is only profitable with intensive irrigation. The pine woods are used as timber and firewood. In the western part of the study area a side arm of the main river, the Manž Gol, separates an about 8 km long and up to 2.5 km wide river island, which is grazed less intensely than the eastern part of the valley, because accessability of that site for livestock depends on the river's water level.

## Methods

The breeding birds were primarily identified by "rationalized" territory mapping (Bibby et al. 1995; Luder, 1981). During territory mapping all observations of possible breeding birds i.e. those that show territorial behavior are marked in detailed daily maps. Activities scored as territorial behavior include:

- singing males,
- nest findings (with eggs ore chicks),
- intensive warning from adults (probably near by nest), or
- fledged chicks.

The 'rationalized' territory mapping is a method to count large areas with a limited number of observers, a small budget of time, or in difficult terrain. In each year 3 inspections of the study area were realized between the end of May and the mid of August. One complete inspection takes about two to three weeks. All observations were recorded as possible breeding territories by coordinates using a GPS receiver (Garmin GPS III plus) in combination with the Fugawi 3.0 Moving Map software from Northport Systems Inc. and the MapSource software from Garmin Cooperation.

For some species, especially species with large territories or birds breeding in holes in trees, all nests were directly recorded, so for raptors (Upland Buzzard *Buteo hemilasius*, Black Kite *Milvus migrans*, Eurasian Sparrow Hawk *Accipiter nisus*, Amur Falcon *Falco amurensis*, Common Kestrel *F. tinnunculus* and Eurasian Hobby *F. subbuteo*), crows (Black-billed Magpie *Pica pica*, Carrion Crow *Corvus corone*, Daurian Jackdaw *C. dauuricus*, Common Raven *C. corax*), Common Hoopoe *Upupa epops*, woodpeckers (Great Spotted, Lesser Spotted and White-backed Woodpecker *Dendrocopos major, D. minor, D. leucotos*), Common Swift (*Apus apus*) and starlings (Grey Starling *Sturnus cinereus*, Common Starling *S. vulgaris* and Daurian Starling *Sturnia sturnia*). For raptors the breeding success was assessed while ringing the chicks. As far as possible also Hoopoe nests were checked to count the number of eggs and ring the chicks.

Data were complemented by captures with standardized net catches in the *Salix*-stands in 2002 and 2003. In both years captures took place at intervals of nearly ten days in the same location using the same net length (120 m) and material. In 2002 the net was set three times (15/06 to 15/07) and in 2003 six times (04/06 to 25/07).

To get an impression of the anthropogenic influence, data on all observed herds of grazing livestock (area, species, number of livestock, behavior, daytime) and all woodcutting activities in the dune forests were noted.

## Results

In the period 2000–2003, 250 bird species were recorded in the study area and its surroundings. Of these, 145 species probably hatch there. For 111 breeding bird species information on distribution, frequency, and breeding ecology was gathered. Table 1 (in the appendix) summarizes the recorded bird species from 2000 to 2003. About 70,000 individual position data were gathered during the three study years.

As it is not possible to describe distribution and frequency of all breeding bird species of the study area in this paper nor to show all distribution maps, the distribution of selected larks and buntings shall be described exemplary.

**Eurasian Skylark – *Alauda arvensis*** (territories: 2001-337/ 2002-331/ 2003-395)

The Skylark is one of the most abundant birds in the steppe of the study area. Meadows are up to three times more densely inhabited by this species than the *Stipa* steppe (abundance in meadows up to 3.96 territories per 10 ha, in *Stipa* steppes 0.72 territories/10 ha). The distribution is highly influenced by the grazing intensity of livestock. There are large steppe and meadow areas without any Skylarks along the barchan dunes and near the settlements.

**Mongolian Lark – *Melanocorypha mongolica*** (21/19/31)

Territories of the Mongolian Lark are found only in steppe habitat. Among these the *Caragana* type of steppe vegetation is more densely settled than pure *Stipa* steppe. Territories in *Stipa* steppe are mostly on top of hillocks. The breeding success is very low; all found nests (n = 7) have been destroyed by livestock.

**Horned Lark – *Eremophila alpestris*** (30/29/59)

In the study area, Horned Larks are the typical larks of *Caragana* steppes with a local density of up to 2 territories per 10 ha (in 2003). Territories in *Stipa* steppe are very rare, possibly because of the higher grazing intensity there. Some territories are situated at the river island where short vegetation is partly protected from flooding.

**Greater Short-toed Lark – *Calandrella brachydactyla*** (42/22/21)

Most of the territories of Greater Short-toed Larks are situated in *Caragana* steppe. This bird species was totally absent from *Stipa* steppes and the meadows. However, the Greater Short-toed Lark occupies another habitat type; it colonizes burnt areas where successional forests have not yet established and short vegetation prevails, examples include the borders of Tujin-Nars-Nature-Conservation-Park. The number of territories in these former fire sites decreased from 26 in 2001 to only 3 in 2003 because of ongoing succession.

**Isabelline Wheatear – *Oenanthe isabellina*** (401/469/534)

The Isabelline Wheatear is the most abundant bird of the steppe. It breeds in holes protected from destruction by livestock. That's why its density is positively correlated with the distribution of *Citellus undulatus*, but not with the intensity of pastoral use. In the meadows, the distribution depends on flood-proof areas with short vegetation. The *Caragana* steppe is more densely settled than the *Stipa* type. The abundance of *Oenanthe isabellina* in *Citellus* colonies can rise up to 4.4 territories per 10 ha (mean 0.25 territories/10 ha for low density and 1.67 territories/10 ha for high density).

**Pine Bunting – *Emberiza leucocephalos*** (249/252/273)

The Pine Bunting is – except for the Eastern Tree Pipit (*Anthus hodgsoni*) – the most abundant bird of the pine woods of Tujin Nars. The density in the isolated groves of older pine trees is similar to that in the former fire sites with young pines and birches, and fluctuates between 0.7 and 2.2 territories/10 ha. The pine woods at the dunes, especially on the slopes to the Orkhon-Valley are free of Pine Buntings. The observed Pine Buntings show no signs of possible hybridization with the related Yellowhammers.

**Yellowhammer – *Emberiza citrinella*** (33/38/39)

The Yellowhammer settles at the borders and clearings of willow woods at former gravel banks along the river. This habitat is characterized by willows with many dead branches occurring adjacent to areas which hardly have any vegetation at all. During times of high intensity solar radiation in summer the sites without vegetation become extremely hot. Data collection for this species is very easy as the males are singing the whole day.

Neither the observed Yellowhammers nor the captured birds have shown any hybrid features with the closely related Pine Buntings. Distances between the nearest territories of both species were at least 2 kilometers.

**Grey-headed Bunting – *Emberiza fucata*** (131/125/74)
The territories of Grey-headed Buntings are strictly situated in silt-covered wet former river beds or on the edges of silted pools. In these often linearly structures densities of up to 2.4 territories/10 ha are recorded. No territories are found inside the willow woods.

**Pallas' Reed Bunting – *Emberiza pallasi*** (8/15/20)
In the study area, Pallas' Reed Bunting lives only in *Caragana* steppe. The nests generally are found inside the largest and densest *Caragana* shrubs. Maximum density is up to 1.4 territories/10 ha, but colonies are very local and small. All observed nests (n = 6) have been destroyed by livestock.

**Black-faced Bunting – *Emberiza spodocephala*** (94/185/115)
The territories of Black-faced Bunting are restricted to the interior of continuous meadows with limited influence of grazing by horses and cows. In the best habitats, densities can reach up to 3 territories/10 ha. The mapping of Black-faced Buntings is very difficult because the birds are very inconspicuous and their habitats are difficult to access and survey.

**Yellow-breasted Bunting – *Emberiza aureola*** (685/573/590)
The Yellow-breasted Bunting is the most common bunting and one of the most abundant birds in the meadows. Its occurrence is tied to willows, no matter if there are willow woods or solitary bushes in former river beds. In willow stands average abundances are up to 10 territories/10 ha.

## Discussion

We presented only a short introduction to some aspects of the distribution and abundance of buntings and larks of the study area, so it is impossible to give a comprehensive discussion. Publications on the frequency of birds in different habitats and the quantitative composition of bird communities in Mongolia are rare. Wichmann (2001) studied the bird communities in Khonin Nuga in a mosaic of different taiga and forest steppe habitats in the valley of river Eröö Gol in Western Khentiy using point mapping and net catches as the principal methods. The bird community is dominated by taiga species. The studied near- natural habitats and their bird communities – also in similar habitat types like riverine woods – are notably different from those of the cultural landscape in Šaamar.

The wealth of bird species in the study area of Šaamar (111 breeding bird species, probably up to 145 in an area of 80 $km^2$) is caused by the high diversity of habitat types. The distribution maps clearly show the influence of land-use by humans, especially on the distribution of ground-breeding species in steppe and meadow. In the elm and pine woods along the barchan dunes, breeders of open ground are very rare. In this habitat apart from the raptors and crows most species are breeding in holes and burrows (Ruddy Shelduck, Common Hoopoe, Common Swift, woodpeckers, redstarts, flycatchers, tits, Eurasian Tree-creeper, Wood Nuthatch, starlings, Eurasian Tree Sparrows).

The breeding success is related to the intensity of human disturbance, livestock grazing and several other influences. We could excellently measure the breeding success for raptors and partly for Hoopoes by checking the nest and ringing chicks. For all other species we have only incidental observations (nest finds, watching of families, and locally net catches).

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## Appendix

**Table 1:** Systematic list of species in observed in the study area Šaamar including status and observation year. b: species is breeding in study area, p: species is possible breeding in study area, s: species is breeding outside of study area in the surroundings, m: species is only recorded as migrant, g: species is only recorded as guest, correct status is unknown.

| Scientific name | English name | b | p | s | m | g | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|
| *Gavia arctica* | Black-throated Diver | | x | x | | | x | x | | x |
| *Podiceps nigricollis* | Black-necked Grebe | | | | | x | | | x | |
| *Podiceps grisegena* | Red-necked Grebe | | | | x | | | x | | |
| *Podiceps auritus* | Slovanian Grebe | | | | | x | x | | x | x |
| *Podiceps cristatus* | Great Crested Grebe | | | x | | | x | | | x |
| *Phalacrocorax carbo* | Great Cormorant | | | | | x | x | x | x | x |
| *Botaurus stellaris* | Great Bittern | | | x | | | | x | x | |
| *Ardea cinerea* | Common Heron | | | x | | | x | x | x | x |
| *Ciconia nigra* | Black Stork | | | x | | | x | x | x | x |
| *Anser anser* | Grey Lag Goose | | x | x | | | x | | x | |
| *Anser cygnoides* | Swan Goose | | x | x | | | | x | x | x |
| *Cygnus cygnus* | Whooper Swan | | | | | x | | x | x | |
| *Tadorna ferruginea* | Ruddy Shelduck | | x | x | | | x | x | x | x |
| *Tadorna tadorna* | Common Shelduck | | | x | | | x | | | x |
| *Anas platyrhynchos* | Mallard | | x | x | | | x | x | x | x |
| *Anas poecilorhyncha* | Spot-billed Duck | | | | | x | | | x | |
| *Anas crecca* | Common Teal | | x | x | | | x | x | x | x |
| *Anas strepera* | Gadwall | | x | x | | | x | x | x | x |
| *Anas acuta* | Northern Pintail | | | | x | | | | | x |
| *Anas penelope* | Eurasian Wigeon | | | | x | | x | x | x | x |
| *Anas querquedula* | Garganey | | x | x | | | | x | x | x |
| *Anas clypeata* | Northern Shoveler | | | x | | | x | x | | x |
| *Netta rufina* | Red-crested Pochard | | | | | x | | | x | |
| *Aythya ferina* | Common Pochard | | x | x | | | x | x | x | x |
| *Aythya fuligula* | Tufted Duck | | x | x | | | x | x | x | x |
| *Bucephala clangula* | Common Goldeneye | | | x | | | | x | | x |
| *Melanitta deglandi* | Asian Velvet Scooter | | | x | | | x | | | x |
| *Mergus albellus* | Smew | | | | | x | | | x | |
| *Mergus merganser* | Common Merganser | | x | x | | | x | x | x | x |
| *Pandion haliaetus* | Osprey | | | x | | | | x | x | |
| *Pernis ptylorhynchus* | Crested Honey Buzzard | | | x | | | x | x | x | x |
| *Milvus migrans* | Black Kite | | x | x | | | x | x | x | x |
| *Circus cyaneus* | Hen Harrier | | x | x | | | x | x | x | x |
| *Circus macrourus* | Pallid Harrier | | | | | x | | | x | |
| *Circus pygarcus* | Montagu's Harrier | | | | x | | | x | | x |
| *Circus aeruginosus* | Marsh Harrier | | | x | x | | | | x | x |
| *Accipiter gentilis* | Northern Goshawk | | | x | x | | | x | x | x |
| *Accipiter nisus* | Eurasian Sparrowhawk | | x | x | x | | | x | x | x |
| *Accipiter gularis* | Besra Sparrowhawk | | | x | x | | | x | | x |
| *Buteo hemilasius* | Upland Buzzard | | x | x | x | | | x | x | x |
| *Buteo buteo* | Common Buzzard | | | x | | | | | x | |
| *Ciraetus gallicus* | Short-toed Eagle | | | | | x | | | | x |
| *Hiraetus pennatus* | Booted Eagle | | | x | | | | | x | x |
| *Aquila nipalensis* | Steppe Eagle | | | x | | | | x | x | x |
| *Aquila clanga* | Greater Spotted Eagle | | | x | | | | | x | |
| *Aquila heliaca* | Imerial Eagle | | | x | | | | x | | x |
| *Aquila chrysaetos* | Golden Eagle | | | x | | | | x | x | x |
| *Haliaeetus albicilla* | White-tailed Eagle | | | x | | | | x | x | x |
| *Aegypius monachus* | Black Vulture | | | x | | | | x | x | x |

continued on next page

| Scientific name | English name | b | p | s | m | g | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|
| *Falco cherrug* | Saker Falcon | x | x | x | | | x | x | x | x |
| *Falco subbuteo* | Eurasian Hobby | x | x | x | | | x | x | x | x |
| *Falco columbarius* | Merlin | | x | x | | | | | x | x |
| *Falco amurensis* | Amur Falcon | x | x | x | | | x | x | x | x |
| *Falco naumanni* | Lesser Kestrel | | | | x | | x | x | x | x |
| *Falco tinnunculus* | Common Kestrel | x | x | x | | | x | x | x | x |
| *Lyrurus tetrix* | Black Grouse | | | x | | | x | | x | x |
| *Tetrao parvirostris* | Black-billed Capercaillie | | | | x | | x | x | | |
| *Tetrastes bonasia* | Hazel Hen | | x | x | | | x | x | x | x |
| *Perdix dauuricae* | Daurian Partridge | x | x | x | | | x | x | x | x |
| *Coturnix coturnix* | Common Quail | x | x | x | | | | | | x |
| *Coturnix japonica* | Japanese Quail | x | x | x | | | | x | x | x |
| *Grus grus* | Common Crane | | | | x | | x | | x | |
| *Anthropoides virgo* | Demoiselle Crane | x | x | x | | | x | x | x | x |
| *Rallus aquaticus* | Water Rail | x | x | x | | | x | x | x | x |
| *Porzana pusilla* | Baillon's Crake | x | x | x | | | x | x | | |
| *Crex crex* | Corncrake | x | x | x | | | | x | x | |
| *Gallinula chloropus* | Common Moorhen | x | x | x | | | x | | | x |
| *Fulica atra* | Common Coot | x | x | x | | | x | x | x | x |
| *Otis tarda* | Great Bustard | x | x | x | | | | x | x | x |
| *Pluvialis squatarola* | Grey Plover | | | | x | | | | x | |
| *Pluvialis fulva* | Lesser Golden Plover | | | | x | | | x | x | x |
| *Charadrius dubius* | Little Ringed Plover | x | x | x | | | x | x | x | x |
| *Charadrius leschenaultii* | Greater Sand Plover | | | | x | | | | | x |
| *Charadrius mongolus* | Ringed Plover | | | | x | | | x | | |
| *Charadrius veredus* | Oriental Plover | | | | x | | | x | | x |
| *Charadrius alexandrinus* | Kentish Plover | | | | x | | | x | | x |
| *Vanellus vanellus* | Northern Lapwing | x | x | x | | | x | x | x | x |
| *Himantopus himantopus* | Black-winged Stilt | | | | x | | | x | x | |
| *Recurvirostra avosetta* | Pied Avocet | | | | x | | | | | x |
| *Tringa ochropus* | Green Sandpiper | | x | x | | | x | x | x | x |
| *Tringa glareola* | Wood Sandpiper | | | | x | | x | x | x | x |
| *Tringa nebularia* | Common Greenshank | | | | x | | | x | | x |
| *Tringa totanus* | Common Redshank | | | | x | | x | x | x | x |
| *Tringa erythropus* | Spotted Sandpiper | | | | x | | | | x | x |
| *Actitis hypoleucos* | Common Sandpiper | x | x | x | | | x | x | x | x |
| *Philomachus pugnax* | Ruff | | | | x | | x | | | x |
| *Calidris minuta* | Little Stint | | | | x | | | x | | |
| *Calidris ruficollis* | Red-necked Stint | | | | x | | | | | |
| *Calidris subminuta* | Long-toed Stint | | | | x | | x | | x | |
| *Calidris temminckii* | Temminck's Stint | | | | x | | | | x | x |
| *Calidris ferruginea* | Curley Sandpiper | | | | x | | | x | x | x |
| *Calidris alpina* | Dunlin | | | | x | | x | x | | |
| *Calidris alba* | Sanderling | | | | x | | | | x | |
| *Limicola falcinellus* | Broad-billed Sandpiper | | | | x | | | | | x |
| *Gallinago gallinago* | Common Snipe | | x | x | | | x | x | x | x |
| *Gallinago megala* | Swinhoe's Snipe | | | | x | | | | x | x |
| *Gallinago stenura* | Pin-tailed Snipe | x | x | x | x | | | x | x | x |
| *Scolopax rusticola* | Eurasian Woodcock | x | x | x | x | | x | x | x | x |
| *Numenius arquata* | Eurasian Curlew | | | | x | | | x | | x |
| *Limosa limosa* | Black-tailed Godwit | | | | x | | x | x | | x |
| *Limosa lapponica* | Bar-tailed Godwit | | | | x | | | | x | |
| *Limnodromus semipalmatus* | Asian Dowitcher | | | | x | | x | x | x | |
| *Phalaropus lobatus* | Red-necked Phalarope | | | | x | | | x | | |
| *Larus minutus* | Little Gull | | | | x | | | x | | x |
| *Larus ridibundus* | Common Black-headed Gull | | | | x | | x | x | x | x |
| *Larus mongolicus* | Mongolian Gull | | | x | | | x | x | x | x |

continued on next page

| Scientific name | English name | b | p | s | m | g | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|
| *Larus canus* | Common Gull | | | | x | | | | | x |
| *Chlidonias niger* | Black Tern | | | | x | | | x | x | x |
| *Chlidonias leucopterus* | White-winged Black Tern | | | x | x | | | x | x | x |
| *Sterna hirundo* | Common Tern | x | x | x | | | | x | x | x |
| *Columba oenas* | Stock Dove | | x | x | | | | | x | x |
| *Columba livia* | Rock Dove | x | x | x | | | | x | x | x |
| *Columba rupestris* | Eastern Rock Dove | x | x | x | | | | x | x | x |
| *Streptopelia turtur* | Turtle Dove | | | | | x | | | x | x |
| *Streptopelia orientalis* | Oriental Turtle Dove | x | x | x | | | | x | x | x |
| *Cuculus canorus* | Common Cuckoo | x | x | x | | | | x | x | x |
| *Cuculus saturatus* | Oriental Cuckoo | x | x | x | | | | x | x | x |
| *Bubo bubo* | Eurasian Eagle Owl | | | x | | | | | x | |
| *Asio otus* | Long-eared Owl | x | x | x | | | | x | x | x |
| *Asio flammeus* | Short-eared Owl | | x | x | | | | x | x | x |
| *Otus scops* | Scops Owl | x | x | x | | | | x | x | x |
| *Aegolius funereus* | Tengmalm's Owl | | x | x | | | | | x | |
| *Athene noctua* | Little Owl | x | x | x | | | | x | | x |
| *Strix uralensis* | Ural Owl | | x | x | | | | | x | |
| *Caprimulgus europaeus* | Eurasian Nightjar | x | x | x | | | | x | x | x |
| *Apus apus* | Common Swift | x | x | x | | | | x | x | x |
| *Apus pacificus* | Pacific Swift | | x | x | | | | x | x | x |
| *Alcedo atthis* | Common Kingfisher | x | x | x | | | | x | x | x |
| *Upupa epops* | Eurasian Hoopoe | x | x | x | | | | x | x | x |
| *Jynx torquilla* | Eurasian Wryneck | x | x | x | | | | x | x | x |
| *Picus canus* | Grey-headed Woodpecker | x | x | x | | | | x | x | x |
| *Dryocopus martius* | Black Woodpecker | x | x | x | | | | x | x | x |
| *Dendrocopos major* | Great Spotted Woodpecker | x | x | x | | | | x | x | x |
| *Dendrocopos leucotos* | White-backed Woodpecker | x | x | x | | | | x | x | x |
| *Dendrocopos minor* | Lesser Spotted Woodpecker | x | x | x | | | | x | x | x |
| *Riparia riparia* | Sand Martin | x | x | x | | | | x | x | x |
| *Hirundo rustica* | Barn Martin | x | x | x | | | | x | x | x |
| *Hirundo daurica* | Red-rumped Swallow | | | | | x | | x | | |
| *Delichon urbica* | House Martin | | | x | | | | | x | x |
| *Calandrella brachydactyla* | Greater Short-toed Lark | x | x | x | | | | x | x | x |
| *Calandrella cheelensis* | Lesser Short-toed Lark | | x | x | | | | x | x | x |
| *Melanocorypha mongolica* | Mongolian Lark | x | x | x | | | | x | x | x |
| *Erempohila alpestris* | Horned Lark | x | x | x | | | | x | x | x |
| *Alauda arvensis* | Eurasian Skylark | x | x | x | | | | x | x | x |
| *Anthus richardi* | Richard's Pipit | x | x | x | | | | x | x | x |
| *Anthus godlewski* | Blyth's Pipit | x | x | x | | | | x | x | x |
| *Anthus campestris* | Tawny Pipit | | | | x | | | | x | |
| *Anthus trivialis* | Tree Pipit | x | x | x | | | | x | x | x |
| *Anthus hodgsoni* | Eastern Tree Pipit | x | x | x | | | | x | x | x |
| *Anthus spinoletta* | Water Pipit | | | x | | | | | x | x |
| *Motacilla flava* | Yellow Wagtail | x | x | x | | | | x | x | |
| *Motacilla citreola* | Citrine Wagtail | x | x | x | | | | x | x | x |
| *Motacilla cinerea* | Grey Wagtail | x | x | x | | | | x | x | x |
| *Motacilla alba* | White Wagtail | x | x | x | | | | x | x | x |
| *Motacilla personata* | Masked Wagtail | | | | | x | | | x | |
| *Prunella fulvescens* | Brown Accentor | | | | | x | | x | | |
| *Prunella montanella* | Siberian Accentor | | | x | | | | x | | x |
| *Saxicola maura* | Siberian Stonechat | x | x | x | | | | x | x | x |
| *Oenanthe oenanthe* | European Wheatear | x | x | x | | | | x | x | x |
| *Oenanthe pleschanka* | Pied Wheatear | | x | x | | | | x | x | x |
| *Oenanthe isabellina* | Isabelline Wheatear | x | x | x | | | | x | x | x |
| *Phoenicurus phoenicurus* | European Redstart | x | x | x | | | | x | x | x |
| *Phoenicurus ochruros* | Black Redstart | | x | x | | | | x | x | x |

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| Scientific name | English name | b | p | s | m | g | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|
| *Phoenicurus erythronotus* | Eversmann's Redstart | | | | | x | | | x | x |
| *Phoenicurus auroreus* | Daurian Redstart | x | x | x | | | x | x | x | x |
| *Luscinia calliope* | Siberian Rubythroat | x | x | x | | | x | x | x | x |
| *Luscinia svecica* | Bluethroat | x | x | x | | | x | x | x | x |
| *Tarsiger cyanurus* | Red-flanked Bush-Robin | | | | x | | | | x | |
| *Turdus obscurus* | Eye-browed Trush | x | x | x | | | x | x | x | x |
| *Turdus ruficollis ruficollis* | Red-troated Trush | | x | x | | | | x | x | x |
| *Turdus r. atrogularis* | Black-troated Trush | | | | | x | | | x | |
| *Turdus naumanni naumanni* | Naumann's Trush | x | x | x | | | x | x | x | x |
| *Turdus pilaris* | Fieldfare | x | x | x | | | x | x | x | x |
| *Turdus viscivorus* | Mistle Trush | | | | x | | | x | | |
| *Zoothera dauma* | White's Trush | | | | x | | x | x | x | x |
| *Zoothera sibiricus* | Siberian Trush | | | | x | | | x | | x |
| *Locustella certiola* | Pallas' Grashopper Warbler | x | x | x | | | x | x | x | x |
| *Locustella lanceolata* | Lanceolated Grasshopper Warbler | | x | x | | | x | | x | |
| *Acrocephalus bistrigiceps* | Black-browed Reed Warbler Warbler | | | | | x | | | | x |
| *Acrocephalus arundinaceus* | Great Reed Warbler | | | x | | | | | x | x |
| *Acrocephalus aedon* | Thick-billed Reed Warbler | | x | x | | | x | | | x |
| *Sylvia communis* | Eurasian Whitethroat | x | x | x | | | x | x | x | x |
| *Sylvia curruca* | Lesser Whitethroat | x | x | x | | | x | x | x | x |
| *Phylloscopus tristis* | Siberian Chiffchaff | x | x | x | | | x | x | x | x |
| *Phylloscopus borealis* | Arctic Warbler | | | | x | | x | x | x | x |
| *Phylloscopus inornatus* | Yellow-browed Warbler | | x | x | | | x | x | x | x |
| *Phylloscopus humei* | Hume's Warbler | | | | x | | | | x | x |
| *Phylloscopus proregulus* | Pallas' Warbler | | | | x | | | x | | x |
| *Phylloscopus fuscatus* | Dusky Warbler | x | x | x | | | x | x | x | x |
| *Phylloscopus schwarzi* | Radde's Warbler | | | | x | | | | | x |
| *Phylloscopus plumbeitarsus* | Swinhoe's Warbler | | x | x | | | x | x | x | x |
| *Regulus regulus* | Goldcrest | | | | | x | | x | | x |
| *Ficedula mugimaki* | Mugimaki Flycatcher | | | | x | | x | x | | |
| *Ficedula albicilla* | Taiga Flycatcher | x | x | x | | | x | x | x | x |
| *Muscicapa striata* | Spotted Flycatcher | x | x | x | | | x | x | x | x |
| *Muscicapa sibirica* | Sooty Flycatcher | x | x | x | | | x | x | x | x |
| *Muscicapa dauurica* | Brown Flycatcher | | x | x | | | x | x | x | x |
| *Panurus biarmicus* | Baerded Tit | | | x | | | | | | x |
| *Aegithalos caudatus* | Long-tailed Tit | x | x | x | | | x | x | x | x |
| *Parus palustris* | Marsh Tit | | x | x | | | x | | x | x |
| *Parus montanus* | Willow Tit | x | x | x | | | x | x | x | x |
| *Parus cinctus* | Siberian Tit | | | | | x | | x | | |
| *Parus ater* | Coal Tit | x | x | x | | | x | x | | x |
| *Parus cyanus* | Azure Tit | x | x | x | | | x | x | x | x |
| *Parus major* | Great Tit | x | x | x | | | x | x | x | x |
| *Sitta europaea* | Wood Nuthatch | x | x | x | | | x | x | x | x |
| *Certhia familiaris* | Eurasian Tree Creeper | x | x | x | | | x | x | x | x |
| *Remiz pendulinus* | Eurasian Penduline Tit | x | x | x | | | x | x | x | x |
| *Lanius cristatus* | Brown Shrike | x | x | x | | | x | x | x | x |
| *Lanius excubitor* | Great Grey Shrike | | x | x | | | | x | | |
| *Garrulus glandarius* | Eurasian Jay | | x | x | | | x | x | x | x |
| *Cyanopica cyana* | Azure-winged Magpie | x | x | x | | | x | x | x | x |
| *Pica pica* | Black-billed Magpie | x | x | x | | | x | x | x | x |
| *Nucifraga caryocatactes* | Spotted Nutcracker | | | | x | | | x | x | x |
| *Phyrrhocorax phyrrhocorax* | Chough | | x | x | | | | x | x | x |
| *Corvus dauuricus* | Daurian Jackdaw | x | x | x | | | x | x | x | x |
| *Corvus corone* | Carrion Crow | x | x | x | | | x | x | x | x |
| *Corvus corax* | Common Raven | x | x | x | | | x | x | x | x |
| *Sturnia sturnia* | Daurian Starling | x | x | x | | | x | x | x | x |
| *Sturnus cineraceus* | Grey Starling | x | x | x | | | x | x | x | x |

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| Scientific name | English name | b | p | s | m | g | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|
| *Sturnus vulgaris* | Common Starling | x | x | x | | | | x | x | x |
| *Passer domesticus* | House Sparrow | x | x | x | | | x | x | x | x |
| *Passer montanus* | Eurasian Tree Sparrow | x | x | x | | | x | x | x | x |
| *Petronia petronia* | Rock Petronia | | | x | | | | | x | |
| *Pyrgilauda davidiana* | Pere David's Snow Finch | | | x | | | | x | x | x |
| *Fringilla montifringilla* | Brambling | | | | x | | | x | x | x |
| *Carduelis spinus* | Eurasian Siskin | | | x | | | x | x | | x |
| *Carduelis flavirostris* | Eurasian Twite | | | x | | | x | | x | x |
| *Carduelis flammea* | Common Redpoll | | | x | | | | x | | x |
| *Carpodacus erythrinus* | Common Rosefinch | x | x | x | | | x | x | x | x |
| *Uragus sibiricus* | Long-tailed Rosefinch | x | x | x | | | x | x | x | x |
| *Pinicola enucleator* | Pine Grosbeak | | | | x | | | | x | |
| *Loxia curvirostra* | Red Crossbill | | | | | | x | x | x | x |
| *Pyrrhula pyrrhula* | Eurasian Bullfinch | | x | x | | | | x | x | x |
| *Coccothraustes coccothraustes* | Eurasian Hawfinch | | x | x | | | x | x | x | x |
| *Emberiza citrinella* | Yellowhammer | x | x | x | | | x | x | x | x |
| *Emberiza leucocephalos* | Pine Bunting | x | x | x | | | x | x | x | x |
| *Emberiza cia* | Rock Bunting | | | x | | | | | | x |
| *Emberiza godlewski* | Godlewski's Bunting | | x | x | | | | x | x | |
| *Emberiza cioides* | Siberian Meadow Bunting | x | x | x | | | | x | x | x |
| *Emberiza fucata* | Chestnut-eared Bunting | x | x | x | | | x | x | x | x |
| *Emberiza schoeniclus* | Reed Bunting | | x | x | | | | x | | x |
| *Emberiza pallasi* | Pallas' Reed Bunting | x | x | x | | | x | x | x | x |
| *Emberiza chrysophrys* | Yellow-browed Bunting | | x | x | | | | x | | x |
| *Emberiza rustica* | Rustic Bunting | | | | | x | | | | x |
| *Emberiza pusilla* | Little Bunting | | | | x | x | | | x | |
| *Emberiza spodocephala* | Black-faced Bunting | x | x | x | | | x | x | x | x |
| *Emberiza aureola* | Yellow-breasted Bunting | x | x | x | | | x | x | x | x |
| *Emberiza rutila* | Chestnut Bunting | | | | x | | | | x | |
| *Emberiza hortulana* | Ortolan Bunting | | x | x | | | | x | | |